

Layan For Windows

Bridging The Gap Between Layout And Simulation

Until now, many engineers working in RF design have been unable to reap the rewards of the recent advances in circuit simulation. Even when the theoretical circuit has been simulated, prototypes often fail due to coupling effects between the PCB tracks and pads linking the components.

Electromagnetic Simulation

LAYAN is an Electromagnetic simulator which takes the printed circuit board layout information from EASY-PC For Windows and computes the effects of the electrostatic and electromagnetic fields of the metallization pattern. Layan produces a partial element equivalent circuit of the layout including capacitive and inductive couplings, inductance and resistance of the tracks. Layan even allows for skin effect, and dielectric losses. The net list of the Partial element equivalent circuit is automatically combined with the original net list from the schematic and the whole fed into Analyser For Windows for analysis.

'S' Parameters

Where complex PCB structures are involved like stripline filters, couplers, etc. their S-parameters can be saved and then used as a design block within the schematic for phenomenally fast simulations of very complex systems.

The Layan Simulation Engine

The engine at the heart of Layan is based on the results of over 20 man-years work by scientists at Philips Research Laboratories in Redhill Surrey, UK. It is an Electromagnetic Field Solver designed specifically for complex planar structures and making use of numerical analysis based on Integral Methods and the Method of Moments. It is capable of modelling much larger problems than most tools already on the market. It achieves this by running 3D Vector Field Analysis, then reducing Maxwell's field equations to an equivalent set of Kirchoff's

network equations. This and other well proven approximations dramatically reduce the computational requirements enabling workstation performance on a PC.

Application Areas

Layan allows accurate simulation of printed couplers, filters, inductors, capacitors, stubs, transformers, transmission lines etc., and is ideal for all analogue, AF, IF, RF and Microwave design verification in any application where the layout itself can have an effect of the performance of the design.

Prerequisites For Using Layan

Layan For Windows works with and requires any Easy-PC For Windows V4 or later, and

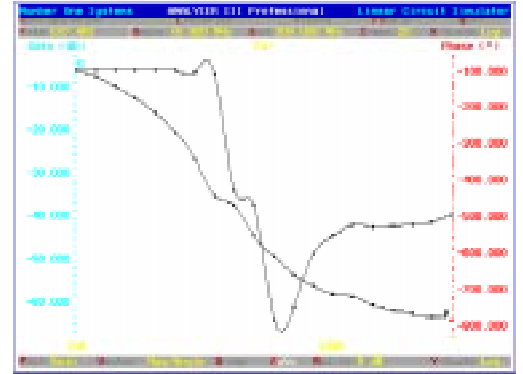


Physical PCB parameters for Layan are set-up using one dialog!

Analyser For Windows version N0820a or later.

Features

- Extracts layout parasitics:
Resistance, Capacitance, Inductance
Mutual inductance
- Extracts circuit information from:
Tracks, Polygons, Via resistance including
skin effect at high frequencies
- Self and mutual inductances
- Capacitances
- Dielectric losses
- Near, far or no ground plane
- 1 or 2 Conductor layers
- Takes into account plated conductors
- Distributed coupling effects
- Transmission line effects
- Models skin effect
- Models loss tangent
- User definable substrate materials, including
Printed circuit board, thick film and thin film.
- Layan allows accurate simulation of printed
couplers, filters, inductors, capacitors, stubs,
transformers, transmission lines, etc. Ideal for
all analogue AF, IF, RF and Microwave
design verification in any application where
the layout itself can have an effect on the
performance of the design.
- Layan can dramatically reduce or even
eliminate the need for design iterations.
- Excellent for microstrip design and
phenomenally fast in operation - often much
faster than competitive workstation based
software.



Results from Layan can be read into the analogue simulator Analyser For Windows. The plot above shows the results from a spiral inductor self-resonating at ~550Mhz.

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